

February 26 to March 3, 2012 (Week 09)

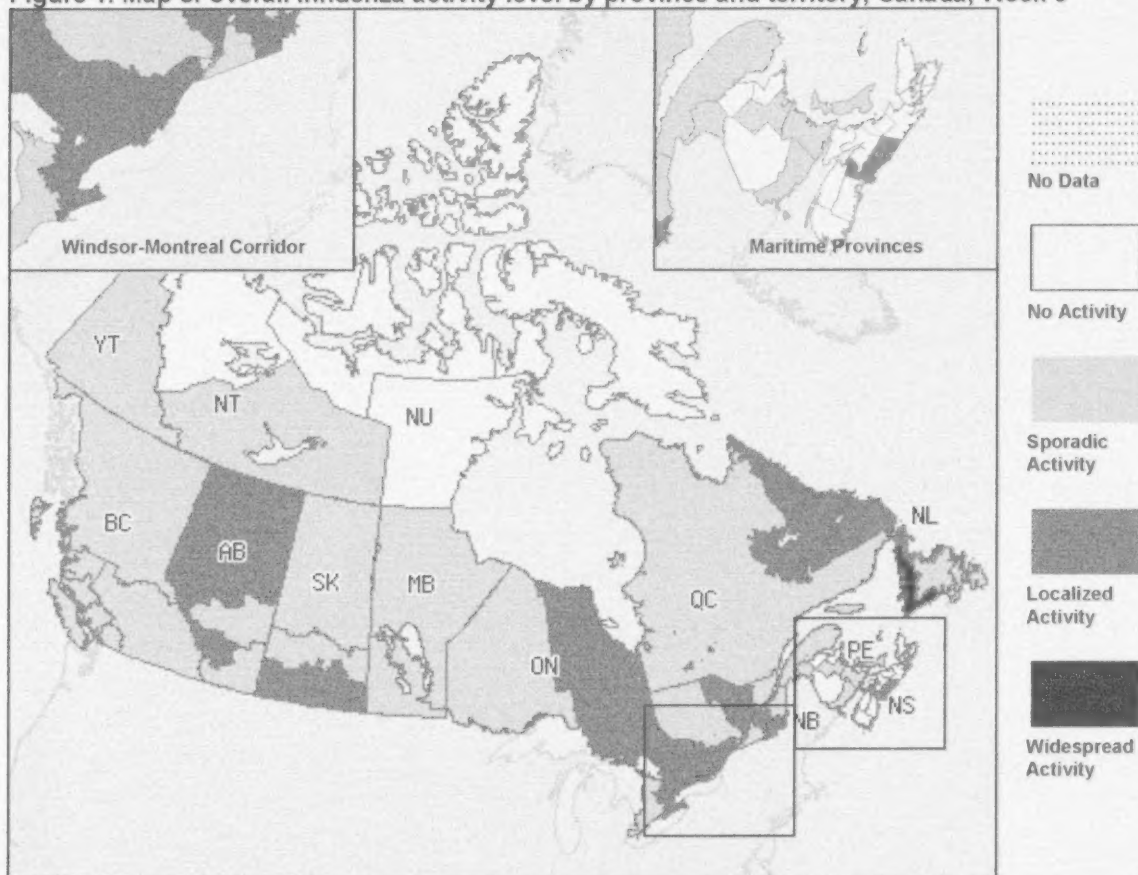
Overall Influenza Summary

- Influenza activity in Canada continued to increase in week 09 compared to previous weeks; all provinces and most territories (except Nunavut) reported either sporadic or localized influenza activity in at least one region this week
- Twenty-nine outbreaks of influenza or ILI were reported this week (13 in LTCFs, 1 in a hospital, 9 in schools and 6 others).
- In week 09, 871 laboratory detections of influenza were reported (15.6% - A(H3); 12.6% - A(H1N1)pdm09; 25.1% - unsubtype and 46.6% influenza B)
- The percent positive for influenza B detections increased compared to the previous week; the majority of influenza B detections (87%) this week were from Ontario and Quebec
- 100 influenza-associated hospitalizations were reported this week (39 paediatric and 61 adult)
- The national ILI consultation rate slightly increased this week compared to the previous week and remains within expected levels for this time of year

Influenza Activity (geographic spread) and Outbreaks

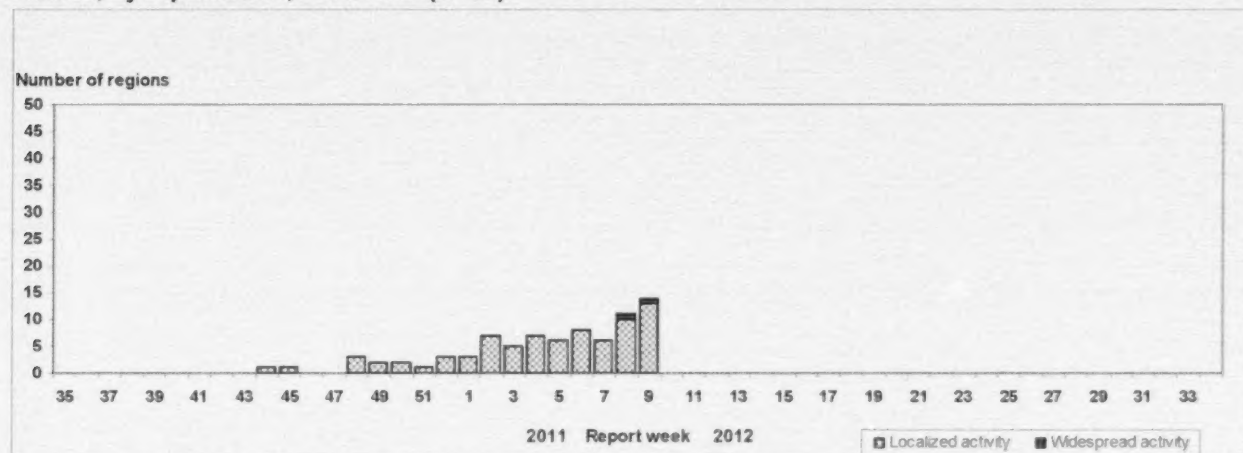
In week 09, 1 region reported widespread influenza activity (NL), 13 surveillance regions (within AB, SK, ON, QC, NS & NL) reported localized activity and 26 regions (within most provinces and territories except in NS & NU) reported sporadic influenza activity (see Figure 1). Twenty-nine outbreaks of influenza or ILI were reported this week: 13 in long-term care facilities (4 in AB, 1 in SK, 4 in ON, 2 in QC & 2 in NS), 1 in a hospital (in ON), 9 in schools (2 in AB, 5 in NS, & 2 in NL) and 6 others (1 in AB, 5 in NS & 2 in NL) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 9



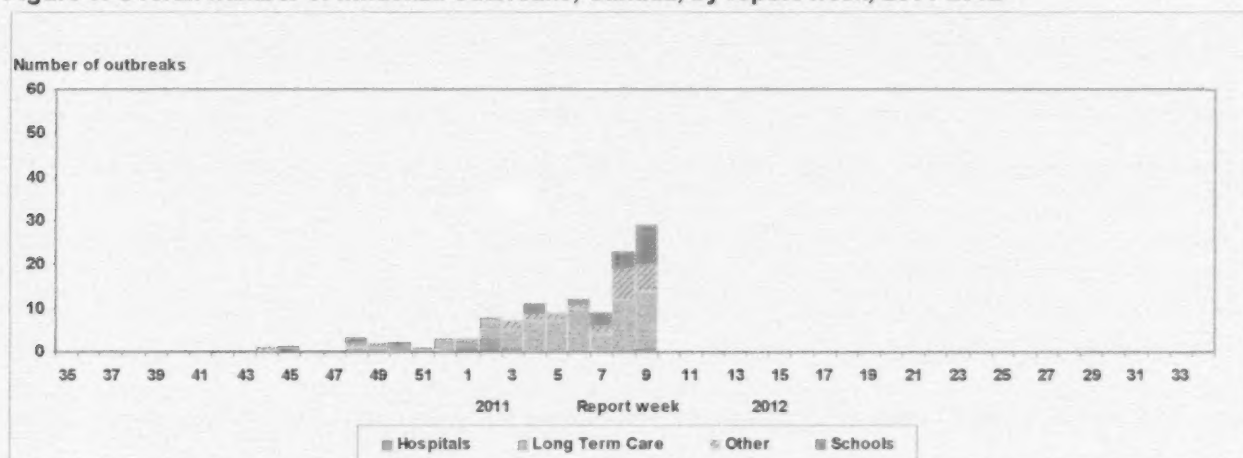
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests continued to increase and was 17.9% (871/4,886) for week 09 (Figure 4 & 5). Of the 871 positive influenza detections this week, 53.4% (465/871) were positive for influenza A and 46.6% (406/871) were positive for influenza B. To date this season, the provinces with the highest proportion of influenza B detections compared to influenza A detections include: ON, QC & the Atlantic provinces.

Cumulative to date of influenza virus detections by type/subtype is as follows: 63.5% influenza A (50.5% - A(H3); 16.8% - A(H1N1)pdm09; 32.8% - untyped) and 36.5% influenza B (Table 1).

Detailed information on age and type/subtype were received on 2,652 cases to date this season (Table 2). The proportions of cases by age group are as follows: 21.4% were < 5 years; 17.1% were between 5-19 years; 25.4% were between 20-44 years; 14.9% were between 45-64 years of age; 21.1% were ≥ 65 years; and 0.1% with age unknown. The largest proportion of influenza A cases were between 20-44 years of age (28%) or ≥ 65 years of age (24%). The largest proportion of influenza B cases were under 20 years of age (55%).

In week 09, the proportion of tests positive for RSV slightly decreased to 17.8% which is similar to the proportion of tests positive for influenza. The highest percent positives for RSV this week were reported in ON, the Prairie Provinces and the Atlantic Region. The percentage positive for the other respiratory viruses declined compared to the previous week (parainfluenza-1.3%; adenovirus-2.1%; human metapneumovirus-4.6%; rhinovirus-5.7%; and coronavirus-4.7%) (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada Report](#).

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	February 26 to March 3, 2012						Cumulative (August 28, 2011 to March 3, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	26	0	17	8	1	5	351	0	321	25	5	36
AB	101	0	67	18	16	7	450	0	375	45	30	38
SK	51	0	30	3	18	0	263	0	199	13	51	1
MB	0	0	0	0	0	3	9	0	4	0	5	5
ON	84	0	17	51	16	184	349	0	98	195	56	549
QC	195	0	5	28	162	169	581	0	16	57	508	430
NB	5	0	0	2	3	0	10	0	3	3	4	4
NS	1	0	0	0	1	4	2	0	0	0	2	5
PE	0	0	0	0	0	1	1	0	1	0	0	4
NL	2	0	0	0	2	33	7	0	4	1	2	90
Canada	465	0	136	110	219	406	2023	0	1021	339	663	1162

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (Feb. 26 to Mar. 3, 2012)					Cumulative (Aug. 28, 2011 to Mar. 3, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	46	11	13	22	45	347	71	164	112	220
5-19	31	3	13	15	43	206	14	139	53	248
20-44	85	20	16	49	33	512	87	243	182	162
45-64	57	11	9	37	19	313	53	135	125	83
65+	53	1	31	21	22	428	27	308	93	131
Unknown	0	0	0	0	0	2	1	1	0	0
Total	272	46	82	144	162	1808	253	990	565	844

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

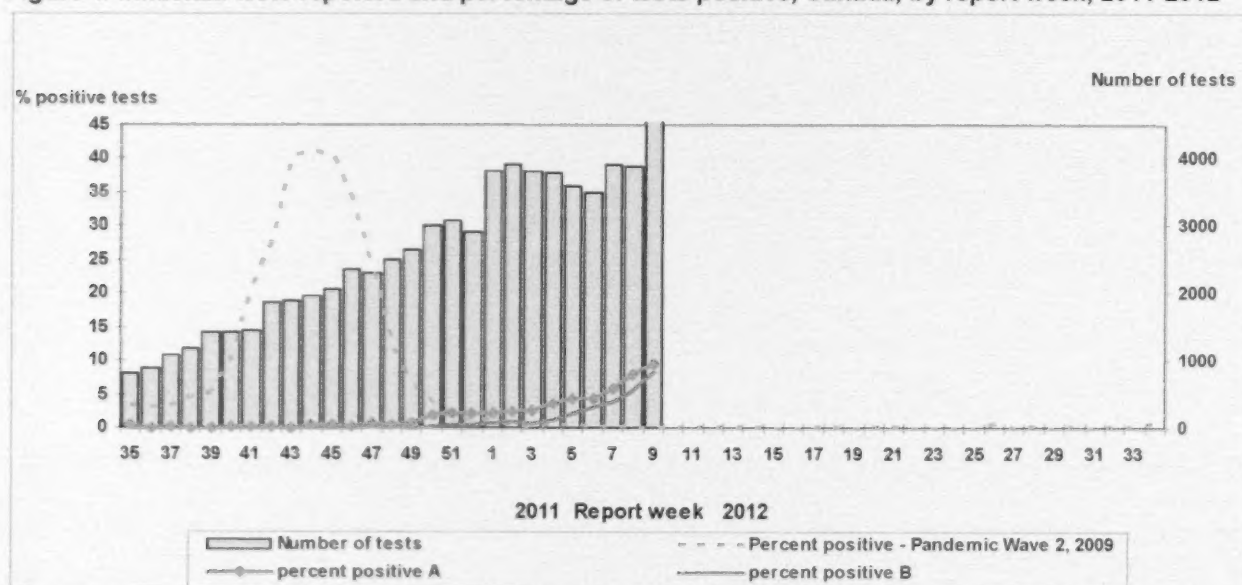
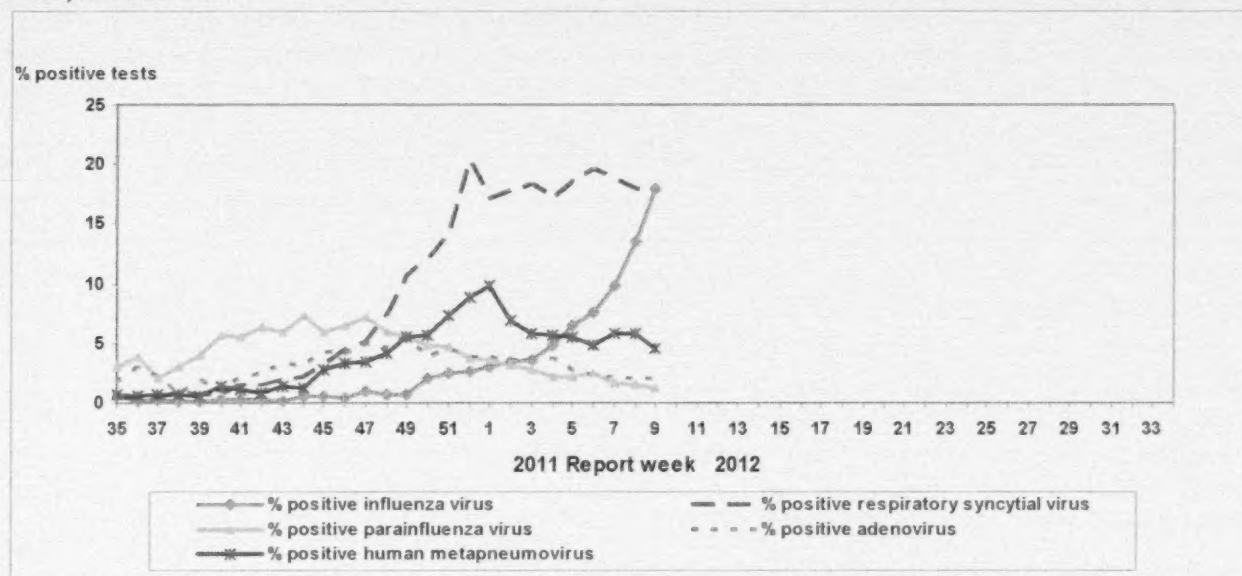


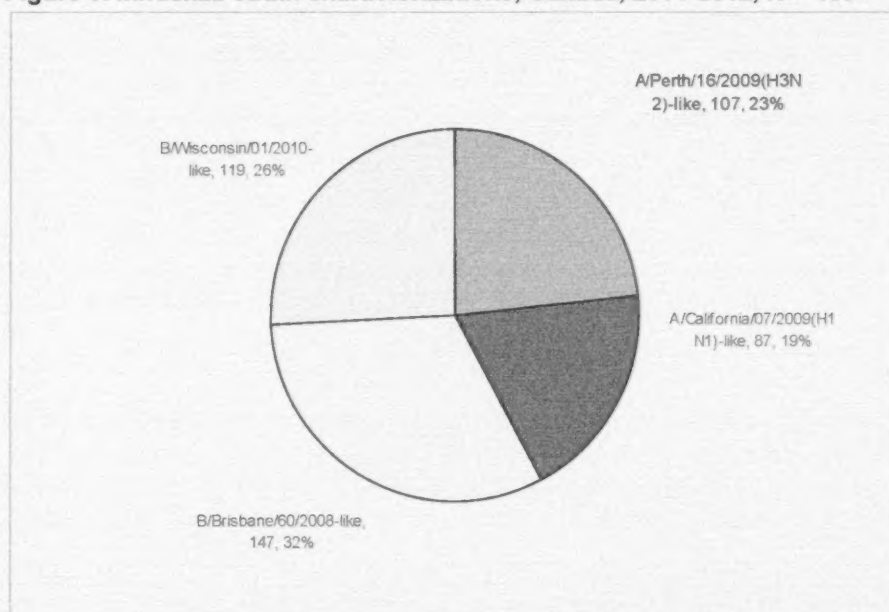
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 460 influenza viruses (107 A/H3N2, 87 A/H1N1 and 266 B). Of the 107 A/H3N2 viruses (from BC, AB, SK, ON & QC), 101 (94.4%) were antigenically similar to A/Perth/16/2009 while 6 (5.6%) viruses showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 87 A/H1N1 viruses characterized (from BC, AB, SK, ON, QC & NB), 86 (98.9%) were antigenically similar to A/California/07/2009 and 1 (1.1%) virus tested showed reduced titer with antiserum produced against A/California/07/2009. Of the 266 influenza B viruses characterized, 147 (55.3%) (from BC, AB, SK, ON, QC, NB & NL) were antigenically similar to the vaccine strain B/Brisbane/60/2008 (Victoria lineage); however 1 virus out of the 147 tested showed reduced titer with antiserum produced against B/Brisbane/60/2008. The remaining 119 (44.7%) influenza B viruses (from BC, AB, ON, QC, NB & NU) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 460



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 451 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 450 influenza viruses for resistance to zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 258 influenza A viruses (150 H3N2 and 108 H1N1) were tested for amantadine resistance; all but one influenza A(H3N2) virus tested were resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

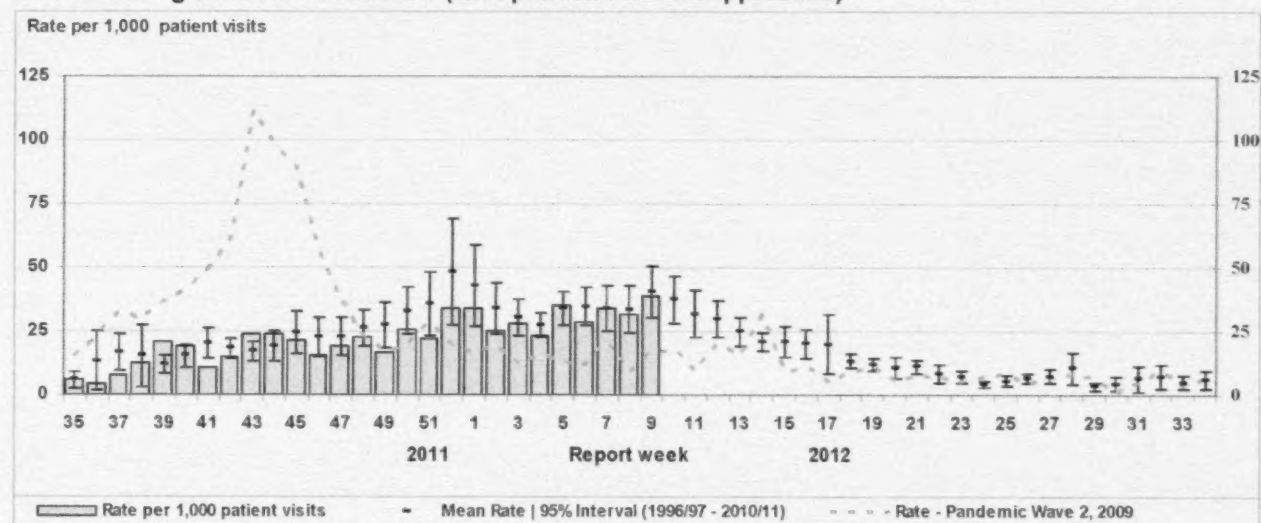
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	106	0	106	0	150	149(99.3%)
A (H1N1)	91	0	91	0	108	108 (100%)
B	254	0	253	0	NA*	NA*
TOTAL	451	0	450	0	258	257 (99.6%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate increased to 38.6 ILI consultations per 1,000 patient visits in week 09 but still remains within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in those 5 to 19 years old (74.4/1,000 visits) and children under 5 (59.2/1,000 visits).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 09, 39 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. Ten hospitalizations were due to influenza A (unsubtyped) (in BC, SK, ON & QC); three were due to A(H1N1) (in AB & QC); six were due to A(H3N2) (in AB) and 20 were due to influenza B (in ON, QC & NL).

To date this season, 160 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, MB, ON, QC, & NL); 86 (53.7%) were due to influenza A and 74 (46.3%) were due to influenza B. The

proportion of cases by age group is as follows: 16.9% among infants <6 months of age; 20.6% among children 6-23 months of age; 31.3% were between 2-4 years; 18.7% were between 5-9 years; and 12.5% were between 10-16 years.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

Adult Influenza Hospitalizations and Deaths

In week 09, 61 new laboratory-confirmed influenza-associated adult hospitalizations were reported: 6 in AB, 53 in ON, 1 in NL and 1 hospitalization requiring ICU admission in SK.

To date this season, 226 influenza-associated adult hospitalizations have been reported from five provinces (AB, SK, MB, ON & NL). The proportion of cases by age group is as follows: 26.5% were in those 17-44 years of age; 25.7% were in those 45-64 years of age and 47.8% were in those ≥ 65 years. In addition, 7 adult influenza-associated deaths have been reported to date this season (6 in ON & 1 in MB); all were ≥ 65 years old.

Note: The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, & QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: Influenza activity in the temperate regions of the northern hemisphere is low but increasing in North America and most of Europe. A few countries of southern Europe appear to have now peaked along with the countries of northern Africa and the Middle East. Countries in the tropical zone reported low levels of influenza activity. Influenza activity in the temperate countries of the southern hemisphere is at inter-seasonal levels. Globally influenza A(H3N2) remains the predominant virus subtype detected. In general, influenza A(H1N1)pdm09 was low, except in Mexico and a few areas in North America. Influenza B virus activity was also low with the exception of some Asian countries where it continued to be the main circulating virus type. The number of B/Yamagata lineage viruses relative to the B/Victoria-like viruses increased compared to the previous reporting period.

[World Health Organization influenza update](#)

United States: In week 8, the CDC reported that 18.4% (726/3,947) of influenza tests were positive of which 96% were for influenza A viruses and 4% for influenza B. Since October 1, 2011, the CDC characterized 572 influenza viruses: 87 A/H1N1, 407 A/H3N2 and 78 B. Eighty-five (97.7%) of the A/H1N1 viruses were characterized as A/California/7/2009(H1N1)-like and 2 (2.3%) showed reduced titers with antiserum produced against A/California/7/2009. Of the 407 influenza A/H3N2 viruses that were characterized, 319 (78.4%) were A/Perth/16/2009-like and 88 (21.6%) showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 78 influenza B viruses that were characterized, 36 (46.2%) were B/Brisbane/60/2008-like (B/Victoria lineage) and 42 (53.8%) belonged to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 1.9%, which is below the national baseline. Widespread influenza activity was reported in 6 states (California, Colorado, Illinois, Nevada, Oklahoma and Virginia), 13 states reported regional influenza activity, 20 states reported localized influenza activity, while the rest reported either sporadic or no activity. One influenza-associated pediatric death was reported to CDC during week 8 and was associated with an influenza virus for which the type was not determined; four influenza associated-pediatric deaths have been reported this season to date.

[Centers for Disease Control and Prevention seasonal influenza report](#)

Europe: In week 9, most countries in the WHO European Region reported medium-intensity, widespread activity and increasing or stable trends. Outpatient consultation rates for influenza-like illness (ILI) and acute respiratory infection (ARI) are low compared to the same period last year. Influenza A(H3N2) continues to be the dominant virus in circulation, with relatively few influenza A(H1N1)pdm09 and influenza B detections reported. Of the 1,878 ILI/ARI samples tested in week 09, 851 (45.3%) tested positive for influenza, of which 91% were for influenza A and 9% for influenza B. Since week 40, 382 influenza viruses have been characterized antigenically: 6 were A/California/7/2009(H1N1)-like; 332 were A/Perth/16/2009(H1N1)-like; 4 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 9 were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 31 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).

[EuroFlu weekly electronic bulletin](#)

Human Avian Influenza Updates

Since March 2, 2012, the WHO reported four new cases of human A/H5N1 avian influenza infection from Bangladesh (3) and Viet Nam (1). The three cases from Bangladesh were all adults (between 18 to 40 years of age) who were

identified as part of the live bird market surveillance system; all were identified from the same site in Dhaka City. All three cases presented with cough and have presently recovered. The case from Viet Nam was a 22-year old male from Binh Duong province who developed symptoms on February 17, 2012, first sought medical care on February 21, was admitted to intensive care on February 23 and is currently still in hospital. Epidemiological investigation indicates that the man was involved in the slaughter and consumption of ducks.

WHO Avian influenza situation updates

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.